

Arctic Research Program Information Sheet

In recent years, decreasing ocean pack ice, increasing air temperatures, thawing permafrost, and redistribution of plants and animals in the delicately balanced Arctic ecosystem indicate that Arctic climate is changing at an unprecedented rate. This causes scientists to search for answers to questions such as: How will this affect the climate and cultures of the Arctic? How will such changes impact the climate and cultures of other regions? These are questions that NOAA wants to answer as part of its mission to better understand and predict the Earth's environment.

It is NOAA's Arctic mission to observe and understand Arctic processes and provide information to U.S. policy and decision makers. NOAA's activities in the Arctic are directed toward integration of Arctic observations, advancement of Arctic modeling efforts, improving Arctic satellite observations, providing leadership on Arctic ocean and coastal issues, and providing Arctic air and sea observations that are critical to assessing change in the climate system.

The goal of the Arctic Research Program is to provide climate-relevant observations and analysis of the broader Arctic region, with an emphasis on the Pacific sector of the Arctic, to support improved climate projections and assessment of impacts in the Arctic and regions influenced by the Arctic.

Arctic Research Program Priorities

NOAA's Arctic research is currently organized and supported by the Arctic Research Program in the Climate Program Office. The Arctic Program oversees NOAA's research activities in the Arctic, Bering Sea, North Pacific and North Atlantic regions. It also represents NOAA on the Interagency Arctic Research Policy Committee, which leads U.S. involvement in the Arctic Monitoring and Assessment Program, and provides a point of contact between NOAA and the Cooperative Institute for Arctic Research and the International Arctic Research Center at the University of Alaska Fairbanks.

Arctic Atmospheric Observatories

NOAA Research leverages off of existing atmospheric observation programs in the Arctic to develop a comprehensive network of Atmospheric Observatories around the Arctic. The objective is to make continuous, detailed measurements of surface radiation, clouds, aerosols, pollutants and chemistry sufficient for detailed evaluation of interactive climate change processes. In addition to the long-term NOAA activities by NOAA in Barrow, Alaska, new measurements have been established in Eureka/Alert, Canada and at the Summit station in Greenland. A major organization effort is currently in progress to establish a new Observatory in Siberia. Activities are being coordinated through NOAA linkages to the International Polar Year Program.

Russian-American Long-term Census of the Arctic (RUSALCA)

The Bering/Chukchi Seas region is thought to be particularly sensitive to global climate change because of the anticipated loss of seasonal ice cover and the warming of ocean waters. To understand the impact of exchanges between the Arctic and the Pacific oceans, it is necessary to monitor the fluxes of water, heat, salt and nutrients, as well as the resulting redistribution and migration of plants and animals.

Collaboration between the U.S. and Russia began with an expedition to the Bering and Chukchi Seas (Arctic Ocean) in 2004. This cruise, the result of an agreement between the two countries, was the first activity under the Russian-American Long-term Census of the Arctic (RUSALCA). (Rusalca means mermaid in the Russian language.) Efforts were undertaken to establish a chain of moorings across the Bering Strait, and to sample the ecosystems, and the ocean in this region to establish benchmark information useful to monitor changes. Many investigators from Russia and the United States collaborate on these programs which will be repeated every four years. In 2007 the National Science Foundation became another partner of the RUSALCA program providing support to maintain the chain of moorings across the Bering Strait, the only Pacific Gateway into the Arctic. In 2008, the RUSALCA mission will repeat its 2004 station sampling and pending sea ice cover will extend its range to the north and west.

Arctic Change Detection

Historical and ongoing Arctic changes are synthesized to assess and predict ongoing Arctic change. For instance, analysis of trends over the past 34 years for a large number of environmental variables indicate far-reaching and correlated changes across a spectrum of physical and biological changes.

Arctic Ocean Ice Buoys

One of the most dramatic and visible changes to the Arctic system is the decreasing extent and thickness of Arctic Ocean ice. It is a challenge to monitor ice thickness, so NOAA contributes to a network of ice buoys that are the primary source of such data.

Study of Environmental Arctic Change (SEARCH)

NOAA's Arctic research supports a number of projects focused on the Study of Environmental Arctic Change (SEARCH). An interagency program, SEARCH fosters cooperation so that the full scope of changes in the Arctic can be fully understood and described. In addition the ARP fosters the development of NOAAs contribution to an Arctic Observing Network.

International Collaboration

NOAA collaborates with several groups on Arctic research, both domestically and internationally, including: The Arctic Monitoring and Assessment Program (AMAP); the Arctic Council; Pacific Arctic Group; International Arctic Science Committee; the Cooperative Institute for Arctic Research; and the International Arctic Research Center. Only by working cooperatively with its external partners can the Arctic climate and its impacts be properly assessed.

NOAA Partners

NOAA Research programs that contribute to Arctic Research Program's activities include the Earth System Research Laboratory (ESRL), the Pacific Marine Environmental Laboratory (PMEL), National Ice Center, and Satellite Research Division of NESDIS.

FY2009 Priorities

For FY09 the Arctic Research Program anticipates that it will maintain the research directions it established in 2008, and is not soliciting proposals for research, observations, or modeling.

Proposals are solicited that relate to post-IPY synthesis and analysis activities. The IPY is an international effort and most of the coordinated projects endorsed by the IPY International Joint Committee have multiple countries involved. The Arctic Research Program believes the international aspect of the IPY is very important and therefore any proposals related to post-IPY synthesis and analysis should be prepared within an international context. In particular the ARP is interested in proposals for involvement in synthesis and analysis activities that have been endorsed by the IPY, or by one or more international Arctic science organizations such as the Arctic Council, Pacific Arctic Group, International Arctic Science Committee, etc. Proposals may be submitted by any qualified scientist, domestic or foreign, but foreign investigators must have a U.S. collaborator.

It is expected that a small number of modest proposals may be supported, and that ARP support will be part of a larger effort having support from other organizations.

For further information, investigators should contact John Calder (John.Calder@noaa.gov, 301-427-2470) or Kathy Crane (Kathy.Crane@noaa.gov, 301-427-2471)

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